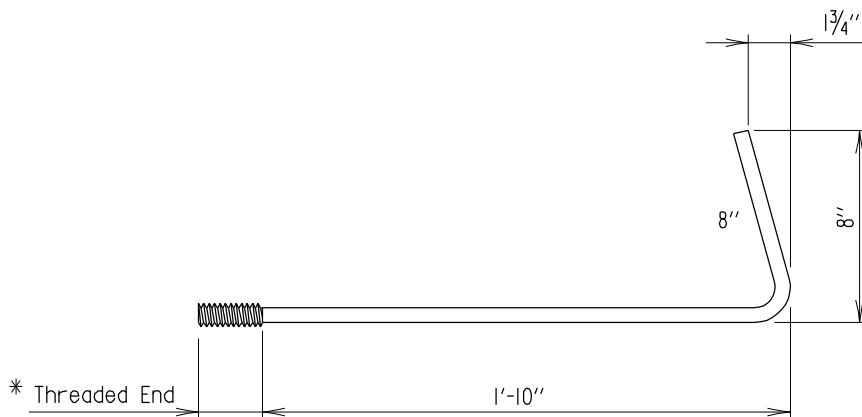


5RW1
TYPE 17
1'-10" INCLUDING THREADS



5RW2
TYPE 17
2'-6" PLUS THREADS

* Root diameter of threaded end must be equal to the nominal diameter of a #5 rebar.

If necessary, the next larger size bar shall be used to satisfy this requirement at no extra charge to SHA.

OTHER RELATED STANDARDS
RW(0.01)-80-100
BR-SB(0.01)-80-101

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<i>L.S. Friedman</i> DIRECTOR OFFICE OF BRIDGE DEVEL. DATE: 3/17/94	
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12-14-98	.
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FHWA APPROVAL	.
DATE: .	.

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REINFORCING BAR STANDARD
DRAINAGE SYSTEM
THREADED REBAR DOWEL COUPLER

STANDARD NO. REBAR-BD(2.21)-93-285

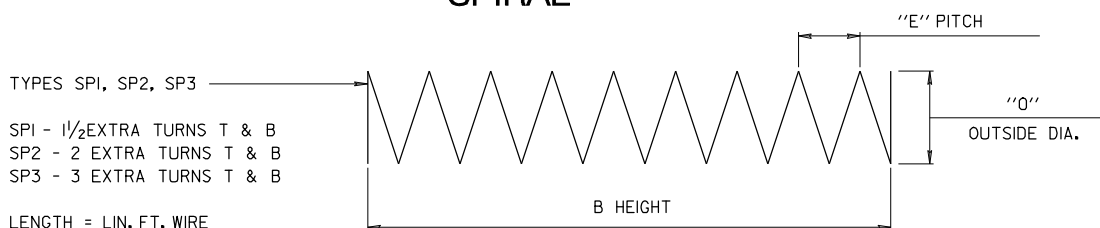
SHEET 1 OF 1

REBAR BAR BENDS

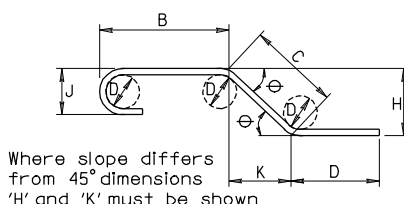
TYPICAL BAR BENDS

DETAILS AND NOTES

SPIRAL



Unless otherwise noted diameter D is the same for all bends and hooks on a bar



ENLARGED VIEW SHOWING
BAR BENDING DETAILS

Notes:

1. All dimensions are out-to-out of bar or to tangent points for 135° and 180° hooks.
2. 'J' dimensions on 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
3. Where 'J' is not shown, 'J' will be kept equal to or less than 'H' on truss bars. Where 'J' can exceed 'H' it should be shown.
4. 'H' dimension on stirrups to be shown where necessary to fit within concrete.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES
GENERAL NOTES

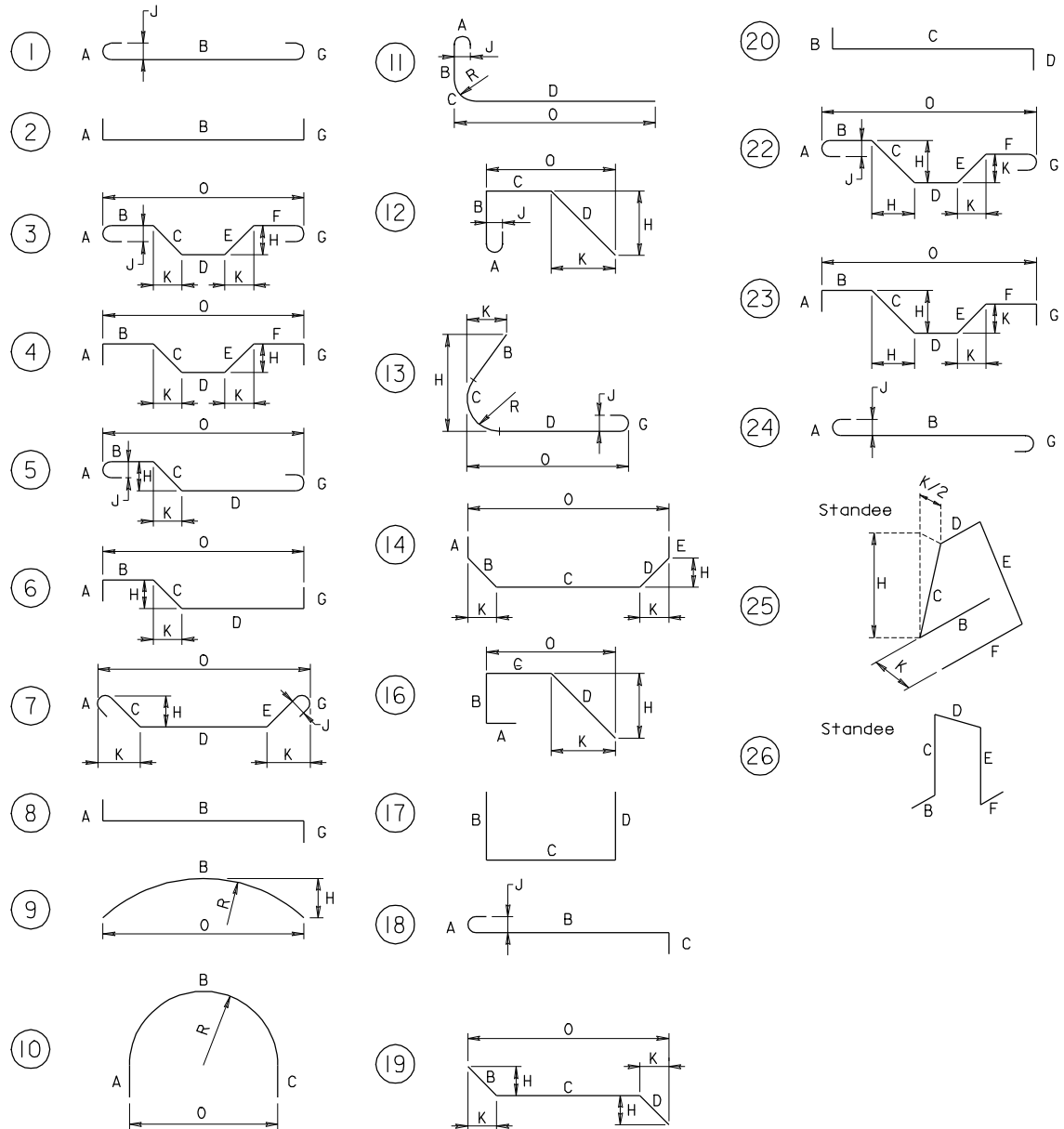
STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 1 OF 8

REBAR BAR BENDS

ACI TYPICAL BAR BENDS

STANDARD PIN BENDING



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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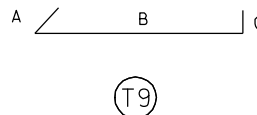
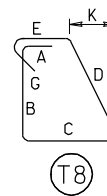
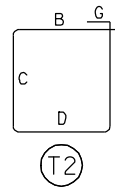
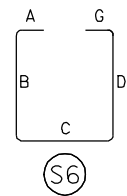
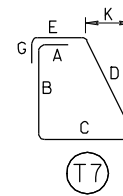
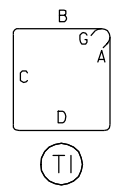
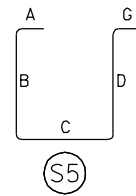
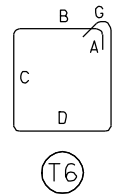
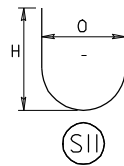
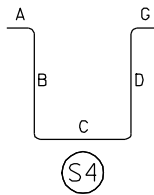
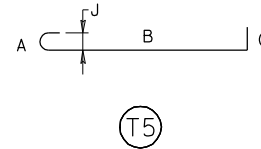
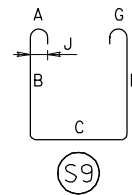
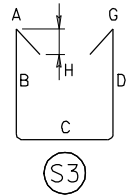
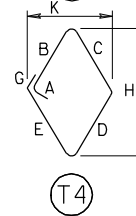
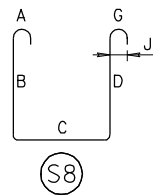
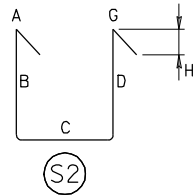
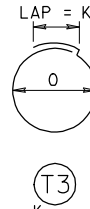
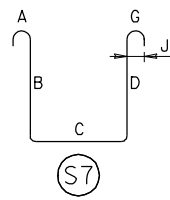
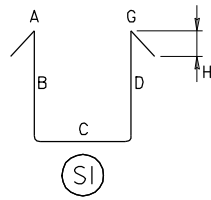
BAR BEND TYPES
ACI - STANDARD PIN BENDING

STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 2 OF 8

ACI TYPICAL BAR BENDS

TIES AND STIRRUPS



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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<i>L. S. Friedman</i>	DIRECTOR
OFFICE OF BRIDGE DEVEL.	
DATE: 2/10/94	
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FHWA APPROVAL
DATE: .

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STATE HIGHWAY ADMINISTRATION
OFFICE OF BRIDGE DEVELOPMENT

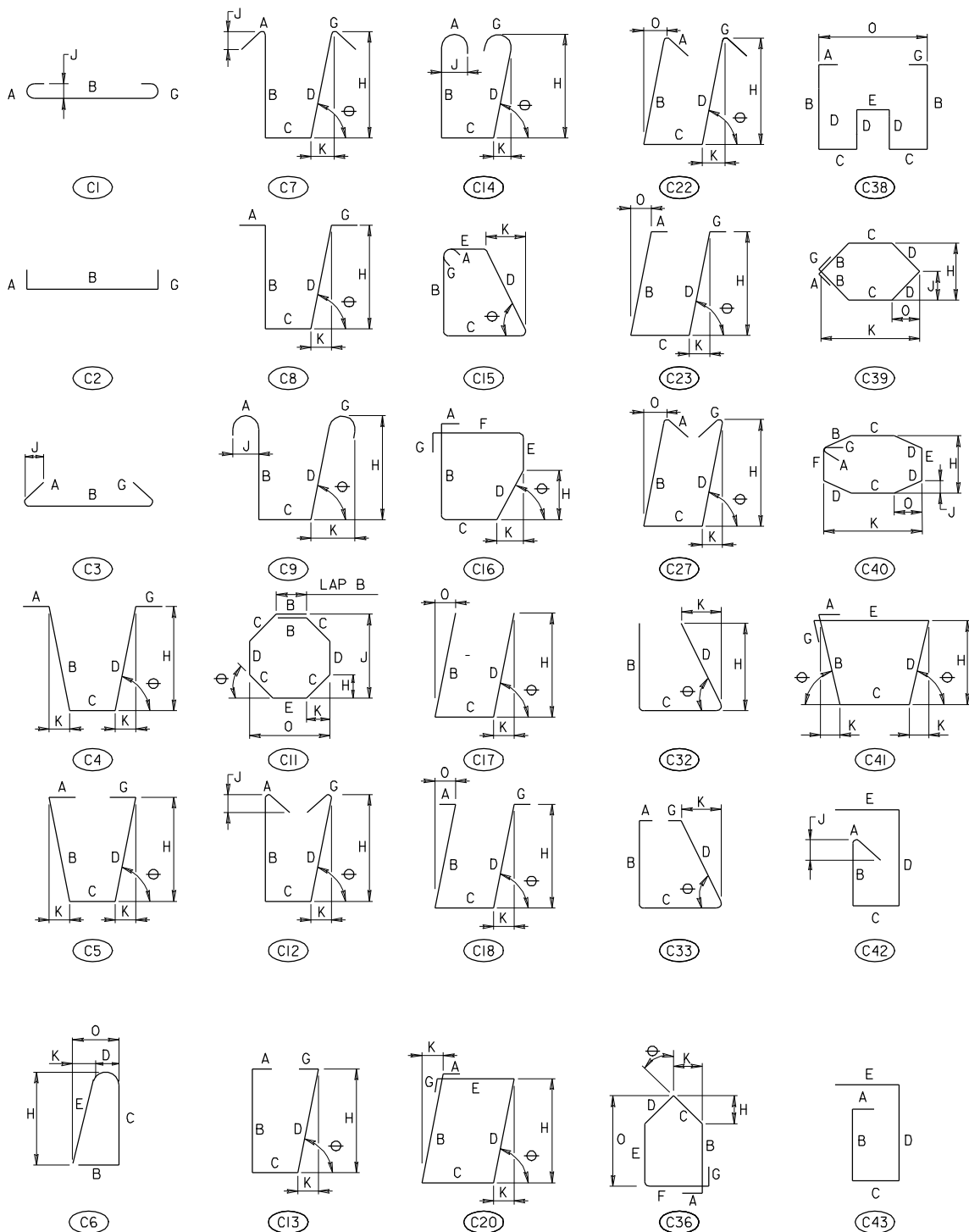
BAR BEND TYPES
ACI- TIES A

STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 3 OF 8

REBAR BAR BENDS

TIES AND STIRRUPS



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE
BENT WITH A PLUS ZERO INCH
(+0'') MINUS (-) NORMAL ACI
BENDING TOLERANCES

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<u>E.S. Friedman</u> DIRECTOR OFFICE OF BRIDGE DEVELOPMENT	
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BAR BEND TYPES
SHA - TIES AND STIRRUPS

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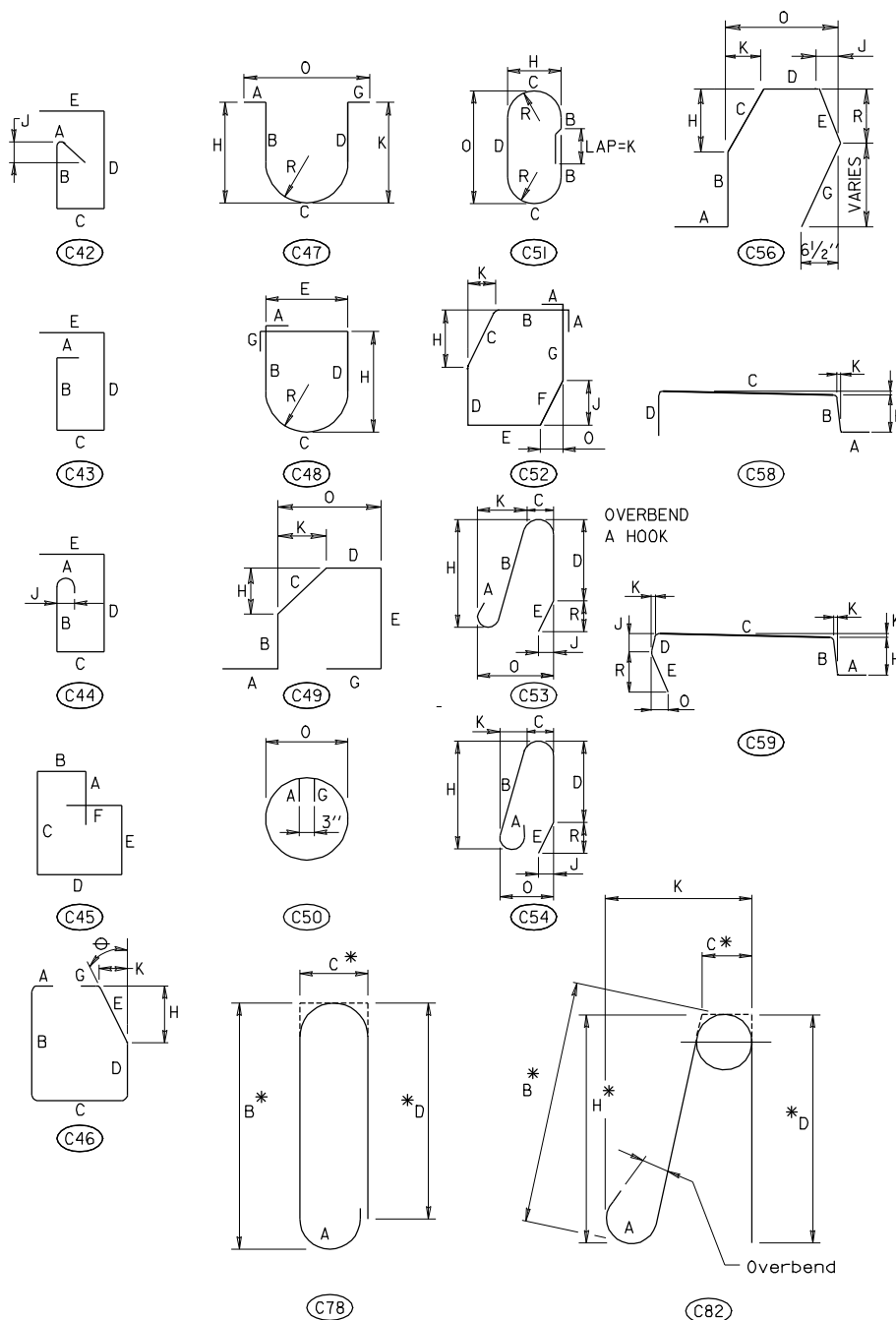
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SHEET 4 OF 8

REBAR BAR BENDS

SHA TYPICAL BAR BENDS

TIES AND STIRRUPS



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

* Measured to Tangents of Curves.

APPROVAL	
<i>[Signature]</i>	DIRECTOR
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BAR BEND TYPES
SHA - TIES AND STIRRUPS

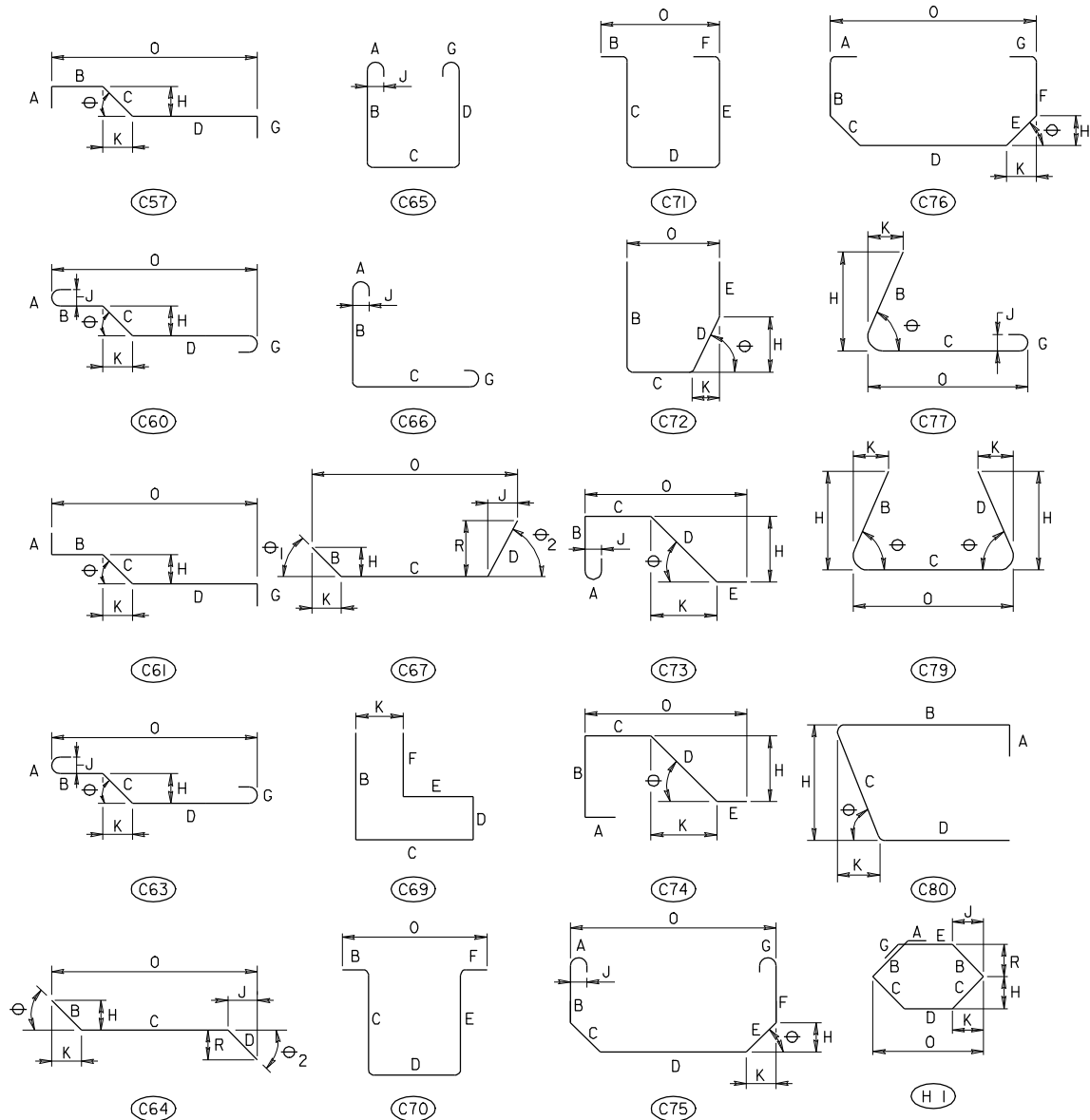
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SHEET 5 OF 8

REBAR BAR BENDS

SHA TYPICAL BAR BENDS

STANDARD PIN BENDING



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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5	5
6	6
7	7
8	8
9	9
10	10

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BAR BEND TYPES
SHA - STANDARD PIN BENDING

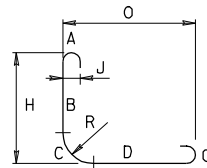
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SHEET 6 OF 8

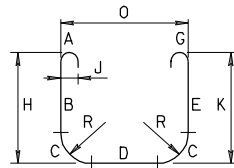
REBAR BAR BENDS

SHA TYPICAL BAR BENDS

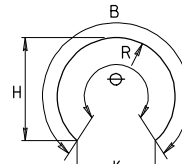
RADIUS BENDING



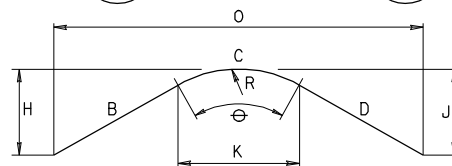
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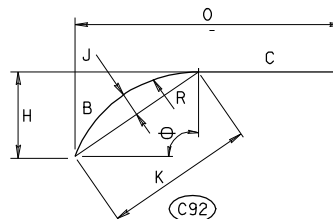
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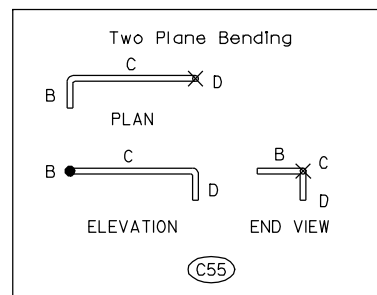
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(C91)



(C92)



(C55)

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0'') MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES
SHA - RADIUS BENDING

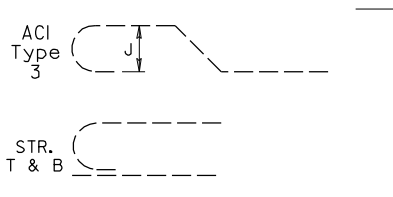
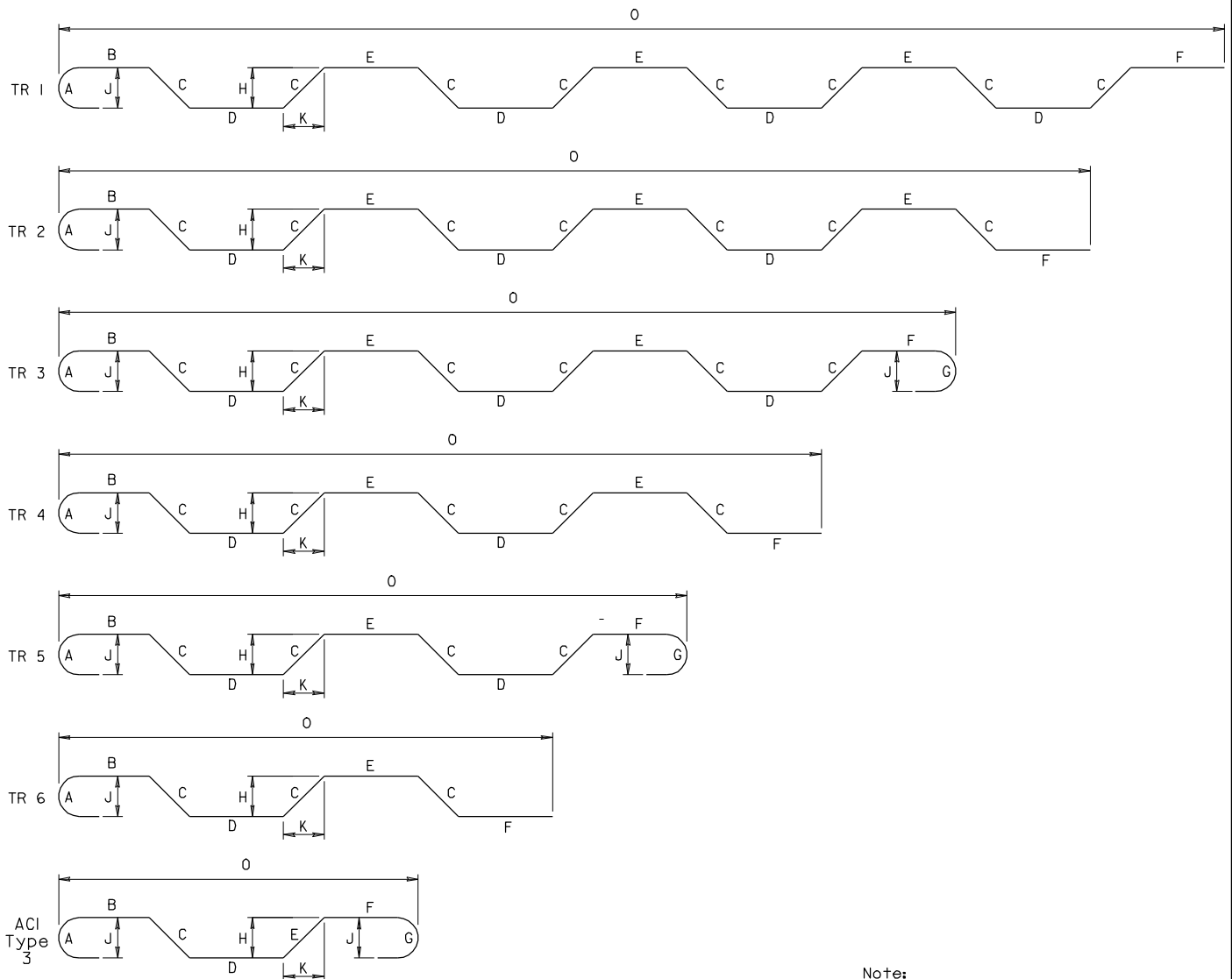
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SHEET 7 OF 8

REBAR BAR BENDS

SHA TYPICAL BAR BENDS

TRUSS BAR CONFIGURATIONS



Straight T.* & B. Bars

Can be substituted for bars in these configuration patterns (*T. Bars with or without hooks)

U.N.O.

Note:
TR 1 and TR 2 are to be used only when there are more than three bays and it is necessary to splice truss bars.

Hooks for truss bars optional.

NOTE TO FABRICATOR

BENDING TOLERANCE NOTE

TIES AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (+0") MINUS (-) NORMAL ACI BENDING TOLERANCES

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BAR BEND TYPES
TRUSS BAR CONFIGURATIONS

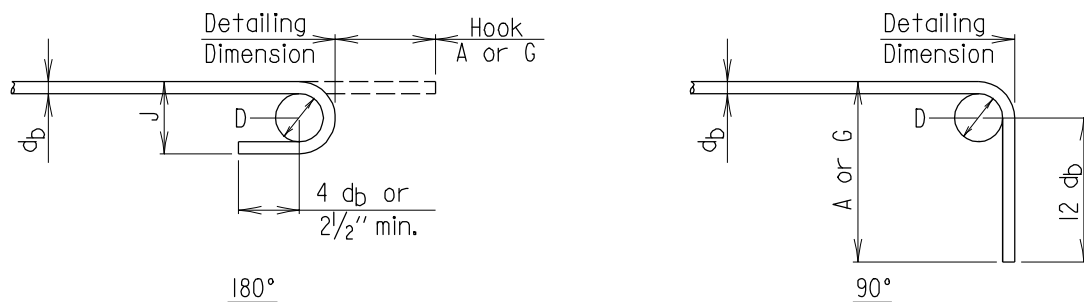
STANDARD NO. REBAR-BD(00.1)-94-296

SHEET 8 OF 8

REBAR BAR BENDS

HOOKS
TABLE 1
REFERENCES

1. ACI Types I thru 26
2. SHA Standard Pin Bending
3. SHA Radius Bending



RECOMMENDED END HOOKS, ALL GRADES				
BAR SIZE	Finished bend diameter	180 - deg hook		90 - deg hook
	D, in.	A or G in	J, in.	A or G in
#3	2 1/4	5	3	6
#4	3	6	4	8
#5	3 3/4	7	5	10
#6	4 1/2	8	6	1-0
#7	5 1/4	10	7	1-2
#8	6	11	8	1-4
#9	9 1/2	1-3	11 3/4	1-7
#10	10 3/4	1-5	1-1 1/4	1-10
#11	12	1-7	1-2 3/4	2-0
#14	18 1/4	2-3	1-9 3/4	2-7
#18	24	3-0	2-4 1/2	3-5

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<i>L.S. Friedman</i> DIRECTOR OFFICE OF BRIDGE DEVEL. DATE: 11/17/97	
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STANDARD NO. REBAR-BD(9.05)-97-320	SHEET <u>1</u> OF <u>2</u>

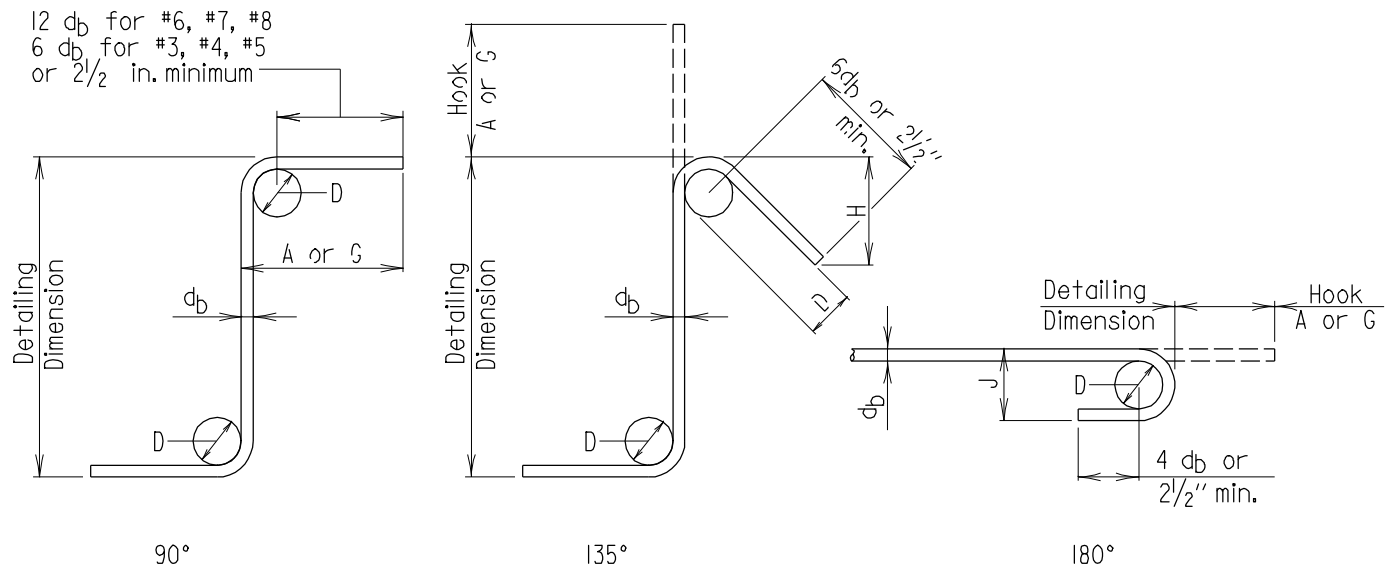
REBAR BAR BENDS

HOOKS
TABLE II
REFERENCES

1. ACI Types SI thru SII
2. ACI Types TI thru T8
3. SHA Ties and Stirrups

(Note: Tie and stirrup types supplied in sizes #3-#8)

STIRRUP AND TIE HOOKS



STIRRUP AND TIE HOOK DIMENSIONS, in.				
BAR SIZE	D, in.	90 - deg hook	135 - deg hook	
		A or G	A or G	H, approx
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4
#6	4 1/2	1-0	7 3/4	4 1/2
#7	5 1/4	1-2	9	5 1/4
#8	6	1-4	10 1/4	6

RECOMMENDED END HOOKS, ALL GRADES			
BAR SIZE	Finished bend diameter	180 - deg hook	
	D, in.	A or G in	J, in.
#3	2 1/4	5	3
#4	3	6	4
#5	3 3/4	7	5
#6	4 1/2	8	6
#7	5 1/4	10	7
#8	6	11	8

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<i>L.S. Fisher</i>	DIRECTOR
OFFICE OF BRIDGE DEVELOPMENT	
DATE: 11/17/97	
REVISIONS	
SHA	FHWA
12-19-97	

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REINFORCING STEEL HOOK TABLES AND DIAGRAMMS	
STANDARD NO. REBAR-BD(9.05)-97-320	SHEET 2 OF 2

REBAR BAR BENDS